

REMARKS

Upon entry of the instant amendment, claims 1, 7-10, 13-14 and 21-24 will remain pending in the above-identified application and stand ready for further action on the merits.

In this Amendment, claims 1, 8, 9 and 10 have been amended to include the use of surfactant in the three claimed polymerization methods. Support for this amendment can be found in paragraph [0067] of the instant specification as published in US Publication No. 2006/0106137 (*which paragraph is reproduced immediately below for the USPTO's convenience*).

[0067] The method of polymerizing the polymer particles (B) is preferably an emulsion polymerization method, suspension polymerization method or dispersion polymerization method wherein a general anionic, cationic, nonionic or amphoteric surfactant, a natural, semi-synthetic or synthetic anionic or nonionic polymer or the above cationic polymer is used as a dispersion or emulsion stabilizer.

New claim 24 has also been added, support for which can be found in paragraph [0025] of the specification in US Publication No. 2006/0106137 (*which paragraph is reproduced immediately below*).

[0025] Because a higher solid content of the emulsion is desired in consideration of productivity etc. in addition to handling convenience and handling, the molecular weight of the natural cationic polymer can be decreased in such a range that the effect of the present invention is not hindered. When the molecular weight of the natural cationic polymer is expressed in terms of the viscosity of an aqueous solution thereof, the viscosity of 7 wt % aqueous solution at 50° C. (Brookfield viscometer, Rotor No. 2, 60 rpm) is preferably 40 to 10,000 mPa·s, more preferably 50 to 8,000 mPa·s.

Claim 8 has been amended to correct an improper multiple dependency.

Accordingly, the present amendments to the claims do not introduce new matter into the application as originally filed. As such entry of the instant amendment and favorable action on the merits is earnestly solicited at present.

Claim Rejections Under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a)

The following rejections are outstanding in the present application:

Claims 1, 9, 10, 13, 14 and 18 stand rejected under 35 U.S.C. §103(a) as obvious over USP 6,753,377 to Niinikoski et al. (hereinafter "Niinikoski") in view of USP 3,632,585 to Gramera et al. (hereinafter "Gramera") and as evidenced by Brandrup et al., Polymer Handbook (hereinafter "Polymer Handbook").

Claims 7 and 8 stand rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Niinikoski.

Reconsideration and withdrawal of the above rejections are respectfully requested based on the amendments made herein to the pending claims and following comments, and based on remarks presented in the earlier filed reply of February 24, 2009, which are incorporated herein by reference in their entirety.

Legal Standard for Determining Anticipation

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is

known in the prior art.” *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

“There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to

combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The Supreme Court of the United States has recently held that the teaching, suggestion, motivation test is a valid test for obviousness, but one which cannot be too rigidly applied. See *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007).

The Supreme Court in *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007) reaffirmed the Graham factors in the determination of obviousness under 35 U.S.C. § 103(a). The four factual inquiries under Graham are:

- (a) determining the scope and contents of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating evidence of secondary consideration.

Graham v. John Deere, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

The Court in *KSR Int'l Co. v. Teleflex, Inc.*, *supra.*, did not totally reject the use of "teaching, suggestion, or motivation" as a factor in the obviousness analysis. Rather, the Court recognized that a showing of "teaching, suggestion, or motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious under 35 U.S.C. § 103(a).

Even so, the Court in *KSR Int'l Co. v. Teleflex, Inc.*, *ibid.*, rejected a rigid application of the "teaching, suggestion, or motivation" (TSM) test, which required a showing of some teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the prior art elements in the manner claimed in the application or patent before holding the claimed subject matter to be obvious.

Advantages of the Present Invention

The present invention provides a method of improving the paper qualities of a pulp sheet, which comprises adding the paper quality improver for internal addition to pulp slurry at the time of papermaking. The paper quality improver for internal addition according to the present

invention exhibits a significant effect on improvement of stiffness, and is thus preferably used for the purpose of improving stiffness.

Distinctions Over the Cited Art

The present invention discloses methods of improving the quality of paper pulp sheets. These improvements include the addition of an internal additive that improves stiffness, and therefore the overall quality of the paper product.

The prior art used previously by the Examiner is **Niinikoski** (US 6,753,377). However, Applicants respectfully submit that the present invention is distinct from **Niinikoski** and that **Niinikoski** does not teach or suggest the present invention at least for the following reasons.

First, **Niinikoski** discloses a precipitation polymerization method, utilizing starch and a hydrophobic monomer (*See Line 66 of Column 1 to Line 12 of Column 2*). Moreover, **Niinikoski** actually teaches away from the present invention, by noting that the use of emulsifiers or water-soluble monomers would prevent one from obtaining the correct surface sizing starch that is the object of the **Niinikoski** invention. Conversely, the presently claimed invention discloses the use of a polymer particle (B) which comprises vinyl acetate units derived from a vinyl acetate monomer that is water soluble. Furthermore, the present invention claims a method of emulsion, suspension or dispersion polymerization, distinct from the precipitation polymerization method described by **Niinikoski** (*See Column 4, Lines 28 to 35*).

Second, the surfactant disclosed in the present invention is not utilized in the **Niinikoski** invention. Surfactants are used in polymerization reactions that proceed according to the classical Harkins model. Contrary to the Harkins model and the presently claimed invention,

Niinikoski's described precipitation polymerization reaction uses no surfactant or surface-active agents (*See Column 4, Lines 55 to 62*).

CONCLUSION

The USPTO is respectfully requested to issue a Notice of Allowance in the matter of the instant application clearly indicating that each of instantly pending claims 1, 7-10, 13-14 and 21-24 is allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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